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Indian Standard

METHOD FOR DETERMINATION OF ABSORBENCY OF ABSORBENT TEXTILE MATERIALS

(First Revision)

Second Reprint APRIL 1999

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Gr 2

August 1967

AMENDMENT NO. 1 NOVEMBER 1977
TO
IS: 2369-1967 METHOD FOR DETERMINATION OF ABSORBENCY OF ABSORBENT TEXTILE MATERIALS

(*First Revision*)

Absorbency results of fabrics differ depending upon whether raised or unraised side of the fabric is placed on the water surface while testing. This amendment has been issued to clarify the method of test.

Addendum

(*Page 3, clause 2.1*) - Add the following note after 2.1:

'Note - In the case of materials with raised surface, the test specimen should be placed with its unraised side towards the surface of water.'

(TDC 5)

Reprography Unit, BIS, New Delhi, India

(*Continued from page* 1)

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Indian Standard
METHOD FOR DETERMINATION OF ABSORBENCY OF ABSORBENT TEXTILE MATERIALS
(First Revision)

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 26 June 1967, after the draft finalized by the Textile Chemistry Sectional Committee had been approved by the Textile Division Council.

0.2 This standard was first published in 1963. In this revision the method of exposing specific volume of absorbent materials to surface of water has been included.

0.3 Absorbent textile materials, such as cotton gauze and cotton wool, are used mostly for surgical purposes. A cotton material of definite absorbency is necessary for use in surgical and other purposes. A textile material, whose absorbency in terms of seconds is less than 10, is considered as highly absorbent material. It is hoped that the revised standard would be helpful in determining the absorbency of absorbent textile materials.

0.4 In reporting the result of a test made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960*.

1. SCOPE

1.1 This standard prescribes a method for determination of absorbency of absorbent textile materials, such as cotton gauze and cotton wool.

2. PRINCIPLE

2.1 The test specimen of specific area or specific volume is placed on the surface of water. The time taken by the specimen to absorb water and sink in it completely is a measure of the absorbency of the test specimen. The shorter the time taken by the specimen to sink in water completely, the greater is its absorbency.

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*Rules for rounding off numerical values (*revised*).

3. SAMPLING

3.1 Lot — The quantity of rolls or bundles of absorbent material (such as cotton gauze and cotton wool) delivered to the buyer against a despatch note shall constitute the lot.

3.2 Unless otherwise agreed to between the buyer and the seller the number of rolls or bundles to be selected at random from the lot shall be as given below:

Lot Size	*Sample Size*
(1)	(2)
Up to 100	4
101 „ 150	5
151 „ 300	7
301 „ 500	10

3.3 The rolls or bundles selected according to **3.2** shall constitute the **test sample.**

4. CONDITIONING OF TEST SPECIMENS AND ATMOSPHERIC CONDITIONS FOR TESTING

4.1 Conditioning for Test Specimens — Prior to test, the test specimens shall preferably be conditioned to moisture equilibrium in a standard atmosphere at 65 ± 2 percent relative humidity and 27° ± 2°C temperature (*see also* IS : 196-1966*).

4.1.1 When the test specimens have been left in such an atmosphere for 24 hours in such a way as to expose, as far as possible, all portions of the specimens to the atmosphere, they shall be deemed to have reached moisture equilibrium.

4.2 Atmospheric Conditions for Testing — The test shall preferably be carried out in the standard atmospheric conditions (*see* **4.1**).

5. APPARATUS

5.1 Wide-Bore Glass Tube — open at both ends (*see* Fig. 1).

5.2 Glass Plunger — solid or closed at the bottom (*see* Fig. 1).

5.3 Glass Trough — of suitable size, preferably 20 × 15 × 50 cm.

5.4 Retort Stand — with a clamp.

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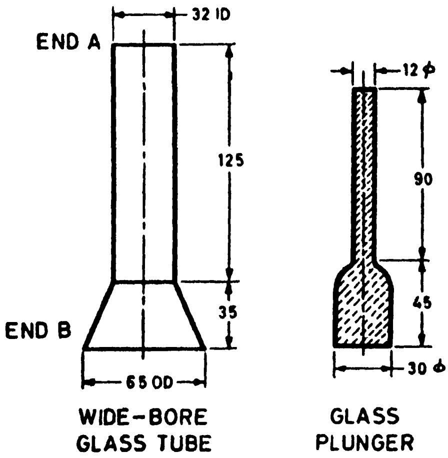
*Atmospheric conditions for testing (*revised*).



All dimensions in millimetres.

FIG. 1 WIDE-BORE GLASS TUBE (WITH FUNNEL END B) AND GLASS PLUNGER

5.5 Stop-Watch — reading correct to 0·1 second.

5.6 Two Glass Plates — 10 × 10 cm and 0·75 cm thickness.

5.7 A Pair of Forceps

6. REAGENTS

6.1 Distilled Water — (*see* IS : 1070-1960*) maintained at 27° ± 2°C.

7. PROCEDURE

7.1 Method I — For Cotton Gauze Like Material — (Exposing specific area to water).

7.1.1 From each roll or bundle in the test sample, draw 5 test specimens each from a single layer and weighing 1 g.

7.1.2 Take one test specimen. Fold it to a square of 5 × 5 cm. Place it between the glass plates. Place 1 kg weight on the glass plate for 10 minutes. Remove the weight and the top glass plate. Place the test specimen gently on the surface of water with a pair of forceps. Start the stop-watch when the test specimen touches the surface of water. Stop the stop-watch when the test specimen disappears under the surface of water. Note the time taken.

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*Specification for water, distilled quality (*revised*).

7.1.3 Repeat the procedure as given in **7.1.2** with the remaining test specimens.

7.1.4 Calculate the average time, in seconds, taken by the test specimens to sink in water.

7.2 Method II — For Cotton Wool Like Material — (Exposing specific volume to water).

7.2.1 From each roll or bundle in the test sample, draw 5 test specimens each weighing 1 g.

7.2.2 Take one test specimen. Hold the wide-bore glass tube vertical on a flat surface with the funnel end *B* at the top. Transfer the test specimen to the tube. Insert the plunger and gently compress the test specimen to a volume of 20 ml.

NOTE — The tube may be graduated. If not the test specimen may be compressed to a length of 25 mm in the tube which gives a volume of 20 ml.

7.2.3 Pour the distilled water in the glass trough so that the level of water is 70 mm below the top of the trough.

NOTE — A clearance of 70 mm from the top is necessary to prevent or minimize the air draught acting on the test specimen when it is dropped on the surface of the water.

7.2.4 Fix the glass tube with the test specimen inside the tube on the stand in such a way that the funnel end *B* is 5 mm above the surface of water in the trough. Insert the plunger from the end *A* and push slowly the test specimen on the surface of the water. Start the stop-watch when the test specimen touches the surface of water. Stop the stop-watch when the test specimen just disappears under the surface of water. Note the time taken.

NOTE — The test specimen should disappear under the surface of the water when completely saturated with water.

7.2.5 Repeat the procedure given as in **7.2.2** to **7.2.4** with the remaining test specimens.

7.2.6 Calculate the average time, in seconds, taken by the test specimen to sink in water.

8. REPORT

8.1 Report the method followed and the average time taken (*see* **7.1.4** or **7.2.6**) as the absorbency of the absorbent material in the lot in terms of seconds.

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